Meeting Notice

Chicago Legal Clinic Conference Room First Floor 2938 E. 91st Street Chicago, IL 60617



Contact Person: Keith Harley Chicago Legal Clinic, Inc. (773) 731-1762 (773) 731-4264 (FAX)

There will be a meeting on Wednesday, June 3, 1998, from 10:00 - 12:00 to discuss the progress of ecological reclamation activities in the Lake Calumet cluster. The following items are proposed for the agenda:

- 1. status reports on individual sites
 - a. Alburn and U.S. Drum wetlands creation (Northwestern 10 min.)
 - b. Paxton Landfill methane collection and site characterization activities (IEPA 15 min.);
- 2. final planning for the June 25, 1998 public information meeting (please see the attached Meeting Notice and EPA's fact sheet on the Lake Calumet Cluster) (facilitated discussion 45 min.);
- 3. final planning for Summer, 1998 sampling (U.S. EPA 20 min.);
- 4. the nature and scope of Phase II activities status (U.S. EPA 20 min.);
- 5. next steps next meeting date (10 min.).

This notice is being provided to the following participants in this process:

U.S. EPA: Mardi Klevs, Pablo Valentin, Lawrence Schmit, Leo Rosalest

Southeast Chicago Development Commission: Lynne Cunningham, Jorge Perez

IEPA: Kevin Greene, Jim Janssen, Chuck Grigalauski, Stan Komperda, Mara McGinnis

Waste Management: Mark Leibrock

Northwestern University: Kimberly A. Gray, Ted Peltier

Calumet Ecological Park Association: Marian Byrnes, Jim Landing

Land & Lakes: Mary Margaret Cowhey, Jim Cowhey

City of Chicago Department of the Environment: James H. Gibson

U.S. Army Corps of Engineers: Jean Sellar

Illinois State Water Survey: George Roadcap.

Please pass this notice on to others in your agency who may be interested in this process. Please contact me if you have suggestions for other participants.

Meeting Notice

Chicago Legal Clinic Conference Room First Floor 2938 E. 91st Street Chicago, IL 60617

> Contact Person: Keith Harley Chicago Legal Clinic, Inc. (773) 731-1762 (773) 731-4264 (FAX)

There will be a meeting on Wednesday, April 15, 1998, from 10:00 - 12:00 to discuss the progress of ecological reclamation activities in the Lake Calumet cluster. The following items are proposed for the agenda:

- 1. discussion of the final Phase One Report, including a review of its key findings (U.S. EPA 30 min.);
- 2. status reports on individual sites
 - a. Land & Lakes' cogeneration facility (Land & Lakes 5 min.)
 - b. Alburn and U.S. Drum wetlands creation (Northwestern 10 min.)
 - c. Paxton Landfill enforcement and site characterization activities (IEPA 10 min.);
- 3. final planning for the public information meeting (as of the date of this Meeting Notice, the date/place for this public meeting is TBD; EPA's fact sheet on the Lake Calumet Cluster is now being finalized and will be available for distribution in the immediate future) (facilitated discussion one hour);
- 4. scheduling the next meeting (5 min.)

The Conference Room will be available following the meeting for a scoping session on technical issues related to the <u>Phase Two Report</u>. U.S. EPA will lead this discussion.

This notice is being provided to the following participants in this process:

U.S. EPA: Mardi Klevs, Pablo Valentin, Lawrence Schmitt

Southeast Chicago Development Commission: Lynne Cunningham

IEPA: Kevin Greene, Jim Janssen, Chuck Grigalauski, Greg Michaud

Waste Management: Mark Leibrock

Northwestern University: Kimberly A. Gray, Ted Peltier

Calumet Ecological Park Association: Marian Byrnes, Jim Landing

Land & Lakes: Mary Margaret Cowhey, Jim Cowhey

City of Chicago Department of the Environment: James H. Gipson

U.S. Army Corps of Engineers: Jean Sellar.

Please pass this notice on to others in your agency who may be interested in this process. Please contact me if you have suggestions for other participants.

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Contact Person: Keith Harley Chicago Legal Clinic, Inc. (773) 731-1762 (773) 731-4264 (FAX)

There will be a meeting on Thursday, November 20, 1997, from 2:00 - 4:00 p.m. to discuss the draft Phase I Ecological Restoration Study - Lake Calumet Cluster Sites, Chicago, Illinois produced by Roy F. Weston, Inc. for U.S. EPA.

The deadline for transmitting written comments to Lawrence Schmitt/U.S. EPA about the draft report is November 14, 1997. The November 20th meeting will provide an opportunity for commentators to elaborate on their written remarks and to hear the perspectives of other commentators. The meeting will also be an opportunity for Weston and U.S. EPA to respond to comments. The meeting may result in a consensus about whether to move into a Phase II study of these sites.

I am attaching a mailing list to this agenda. You may wish to provide your written comments to other participants in our process prior to November 20th.

This notice is being provided to the following participants in this process:

U.S. EPA: Mardi Klevs, Pablo Valentin, Lawrence Schmitt

Southeast Chicago Development Commission: Lynne Cunningham

IEPA: Kevin Greene, Jim Janssen, Chuck Grigalauski, Greg Michaud

Waste Management: Frank McNichols

Roy F. Weston: Terry Bosko, Warren Buchanan

Northwestern University: Kimberly A. Gray

Calumet Ecological Park Association: Marian Byrnes, Jim Landing

Land & Lakes: Mary Margaret Cowhey, Jim Cowhey

City of Chicago Department of the Environment: James H. Gipson

U.S. Army Corps of Engineers: Jean Sellar.

Please pass this notice on to others in your agency who may be interested in this process. Please contact me if you have suggestions for other participants.

Terry Bosko Roy F. Weston, Inc. 3 Hawthorn Parkway, Site 400 Vernon Hills, IL 60061 FAX (847) 918-4055

Warren Buchanan Roy F. Weston, Inc. 70 West Madison St., Suite 1990 Chicago, IL 60603 FAX (847) 433-2431

Marian Byrnes Calumet Ecological Park Ass'n. 9716 S. Van Vlissingen Chicago, IL 60617 FAX (773) 978-7140

Jim Cowhey Land & Lakes Company 123 N. Northwest Highway Park Ridge, IL 60067 FAX (847) 825-0887

Mary Margaret Cowhey Land & Lakes Company 123 N. Northwest Highway Park Ridge, IL 60067 FAX (847) 825-0887

Lynne Cunningham Southeast Chicago Development Commission 9204 S. Commercial, #212 Chicago, IL 60617 FAX (773) 731-8618

James H. Gipson City of Chicago Department of the Environment 30 N. LaSalle St. Suite 2500 Chicago, IL 60602 FAX (312) 744-6451

Kimberly A. Gray Department of Civil Engineering Northwestern University 2145 Sheridan Rd. Evanston, IL 60208-3109 FAX (847) 491-4011

Kevin Greene Illinois Environmental Protection Agency Office of Pollution Prevention 1021 N. Grand Ave. East Springfield, IL 62703 FAX (217) 557-2125

Chuck Grigalauski Illinois EPA 1701 S. First Ave. Suite 600 Maywood, IL 60153 FAX (312) 814-1043 Keith Harley Chicago Legal Clinic, Inc. 2938 E. 91st St. Chicago, IL 60617 (773) 731-4264

Jim Janssen Illinois EPA 1701 S. First Ave. Suite 600 Maywood, IL 60153 FAX (708) 338-7930

Mardi Klevs Chicago Regional Team Coordinator U.S. EPA - Region 5 77 W. Jackson (T-17J) Chicago, IL 60604 FAX (312) 886-2737

James Landing
Lake Calumet Study Committee
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1007 W. Harrison St.
Chicago, IL 60607
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Frank McNichols Waste Management, Inc. P.O. Box 7070 Westchester, IL 60154 FAX (708) 409-3554

Greg Michaud Illinois Environmental Protection Agency 1027 N. Grand Ave. East Springfield, IL 62703 FAX (217) 785-3819

Lawrence Schmitt U.S. EPA - Region 5 Superfund Division 77 W. Jackson (SR-6J) Chicago, IL 60604 FAX (312) 886-4071

Jean Sellar U.S. Army Corps of Engineers 111 N. Canal Chicago, IL 60606-7206 FAX (312) 353-4110

Pablo N. Valentin U.S. EPA - Region 5 77 W. Jackson (SR-6J) Chicago, IL 60604 FAX (312) 886-4071

Chicago Legal Clinic Conference Room First Floor 2938 E. 91st Street Chicago, IL 60617

> Contact Person: Keith Harley Chicago Legal Clinic, Inc. (773) 731-1762 (773) 731-4264 (FAX)

There will be a meeting on Wednesday, October 15, 1997 from 10:00 - 12:00 to discuss the future of the cluster of waste disposal sites immediately adjacent to the Indian Ridge Marsh.

We are meeting for two reasons. First, on behalf of U.S. EPA, Roy F. Weston, Inc. has produced a draft of its ecological restoration study for the site cluster. This draft report will be sent to the participants in this process in advance of our meeting. The U.S. EPA and Weston would like to get feedback from us on their draft report. In addition, we will finalize the process through which timely written comments can be given to Weston after the October 15th meeting. This feedback will be critically important in the subsequent development of the final ecological restoration plan.

Second, Jim Janssen of IEPA has requested an opportunity to describe several important, recent developments at the site cluster.

We will begin immediately at 10:00 and adjourn promptly at 12:00.

This notice is being sent to the following participants in this process:

<u>U.S. EPA</u>: Mardi Klevs, Elizabeth Babcock, Ed Karecki, Pablo Valentin, Lawrence Schmitt, James Chapman, Dave Petrovski, Lara Pullen

Southeast Chicago Development Commission: Lynne Cunningham

IEPA: Kevin Greene, Jim Janssen, Chuck Grigalauski, Greg Michaud

Waste Management: Frank McNichols

Roy F. Weston: Terry Bosko, Warren Buchanan

Conservation Design Forum: Linda Masters

Ward Environmental Services: Dave Ward

Northwestern University: Kimberly Gray

Calumet Ecological Park Association: Marian Byrnes, Jim Landing

Please contact me if you have suggestions for other participants in this process.

Chicago Legal Clinic Conference Room First Floor 2938 E. 91st Street Chicago, IL 60617

Contact Person: Keith Harley Chicago Legal Clinic, Inc. (773) 731-1762 (773) 731-4264 (FAX)

There will be a meeting on September 3, 1997 from 10:00 - 12:00 a.m. to discuss the future of the cluster of waste disposal sites immediately adjacent to the Indian Ridge Marsh.

We scheduled this meeting to accomplish a single purpose. Under the terms of its contract with U.S. EPA, Roy F. Weston, Inc. is conducting an ecological restoration study for the site cluster. Weston, in turn, has subcontracted with two companies, Conservation Design Forum and Ward Environmental Services, to provide technical expertise in ecological restoration. Weston and its subcontractors are now far enough along in their work to make a presentation on September 3rd. They are hoping to get feedback from us on their preliminary ecological restoration alternatives during and following the meeting. Our feedback will be critically important in the subsequent development of the ecological restoration plan.

There will also be time set aside for brief reports on other important issues, including a description of the status of the National Park Service's evaluation of the Calumet National Ecological Park proposal.

We will begin immediately at 10:00 and adjourn promptly at 12:00.

This notice is being sent to the following participants in this process:

<u>U.S. EFA</u>: Mardi Klevs, Elizabeth Babcock, Ed Karecki, Pablo Valentin, Lawrence Schmitt, James Chapman, Dave Petrovski, Lara Pullen

Southeast Chicago Development Commission: Lynne Cunningham

IEPA: Kevin Greene, Jim Janssen, Chuck Grigalauski

Waste Management: Frank McNichols

Roy F. Weston: Terry Bosko, Warren Buchanan

Northwestern University: Kimberly Gray

Calumet Ecological Park Association: Marian Byrnes, Jim Landing

Please contact me if you have suggestions for other participants in this process.

Chicago Legal Clinic Conference Room First Floor 2938 E. 91st Street Chicago, IL 60617

There will be a meeting on July 9, 1997 from 10:00 - 12:00 a.m. to discuss the future of the cluster of waste disposal sites immediately adjacent to the Indian Ridge Marsh.

This meeting has two purposes: 1) to receive reports on five cluster-related activities (the first hour), and, 2) to brainstorm on the full range of financing opportunities for site restoration and remediation (the second hour). We will begin immediately at 10:00 and adjourn promptly at 12:00.

Agenda

<u>I. Reports</u> - (10:00 - 11:00)

- A. Ecological Assessment U.S. EPA (15 minutes)
- B. Northwestern Study Kim Gray (15 minutes)
- C. Feasibility of Co-Generation Kim Gray (10 minutes)
- D. Status of Consultant U.S. EPA (10 minutes)
- E. IEPA Activities (10 minutes)
 - Flood Control Activities/Paxton Lagoons
 - 2. Paxton Landfill
 - 3. Alburn Incinerator

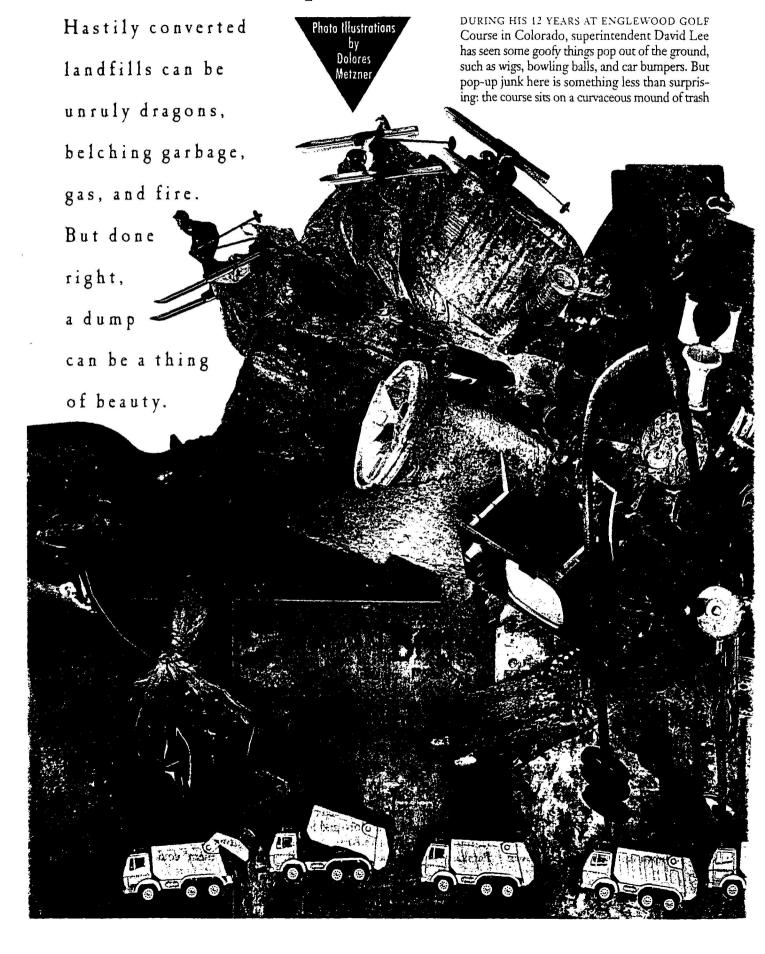
II. Financing Options - (11:00 - 11:50)

- A. Possible Ways To Finance Site Remediation and Reclamation
- B. Incremental Steps Needed to Evaluate Site Financing Options

III. Scheduling the Next Meeting

Section 4 Environmental Roading Report. 122 & Stony Island (Flooding Issues)

At Play on a Field





an eroded hole around a light pole. To see in the shadows, she pulled out a pocket lighter. An exploding fireball blew her several feet back from the methanefilled hole. Fortunately, she suffered little more than minor burns and a bad case of the shakes. Signs discouraging open flames and smoking in all five of Charlotte's landfill parks were quickly posted.

There are far more tangible signs of the waste that lies just inches below the Renaissance landfill cover. On an afternoon after a gentle rain, the ground at the park's 18-hole golf course crackles like the sound of Rice Krispies. The noise comes from large patches of mud bubbling with gas. "It looks like polenta boiling on the stove," observes retired course near Renaissance's sixth green in 1989. Workers quickly doused it. But such landfill fires can spread underground for

Several years ago, in Mountain View, California, an open-air amphitheater built over a landfill erupted in smoke during a Grateful Dead concert. The landfill was equipped with a gas extraction system, but the city had turned over the system's maintenance to the production company that ran the concert. When the production crew saw the smoke coming out of a crack in the ground, they cranked up the suction. The smoke disappeared, but the suction drew the fire underground and fueled it. Luckily, engineers arrived before anyone was hurt. dumps won't go away. The United States generates some 209 million tons of municipal waste each year, over four pounds per person per day. Although no one knows exactly how many landfills reach capacity each year, the number is probably well over a hundred, and these monuments to waste cost money to maintain. Since 1993, for example, EPA regulations have required landfill operators to prevent their sites from leaking gas or polluted water for at least 30 years after they're closed (by then, according to theory, most of the gases from the decomposing garbage will have been released). The associated maintenance costs can reach hundreds of thousands of dollars an acre, which makes conversion to a revenue-generating facility like a golf course attractive-but problematic.

In 1993 the EPA also set some minimum standards for the design and operation of new landfills. Though aimed at reducing off-site pollution, these rules have the side effect of improving safety and stability on top of landfills as well. They require operators to screen waste for obvious chemical hazards and to refuse medical or toxic waste. Bulk liquids-such as sewage-are acceptable only if they have been solidified with soil or other stabilizers. Operators must also cover each day's garbage with a six-inch laver of dirt, which reduces the blowing away of trash and odors. The landfill's final cap, in turn, must consist of at least two feet of compacted soil.

But only last year did the EPA make a move to control some of the gases that bubble to the surface of closed landfills. These gases are produced by the microbial food chain in the anaerobic, or oxvgenless, environs of a landfill. Some bacteria, for example, degrade cellulose into sugar. Others eat the sugar, producing the acid that feeds gas-releasing bacteria. The result of their feast is a mix of methane (50 percent), carbon dioxide (40 percent), and nitrogen (9 percent), plus the trace contaminants that produce the foul smell of decay. None of these gases are particularly hazardous when allowed to dissipate in open air, says Martha Smith of the EPA's office of air quality planning and standards. It's the remaining 1 percent that includes some scary stuff.

When bacteria degrade household cleaning products, solvents, paints, and pesticides, they generate vapors that include such nasty carcinogens as benzene, toluene, vinyl chloride, and a half dozen

The United States generates 209 million tons of municipal waste each year, over four pounds per person per day.

superintendent Robert Orazi. But it smells like rotten eggs. Last year, Orazi gave up after six years of coaxing the grass and trees to grow on two feet of soil baked dry from the heat of rotting garbage below.

The course is also plagued by uneven settlement that dimples the fairways, tilts putting greens, breaks irrigation pipes, and turns cart paths into rolling "whoopde-doos" only a dirt biker would love. Then there's the Blob, a foot-tall lump of wiggly amber-colored ooze creeping out of the fourth fairway. "We tried shoveling it; we tried covering it. It just comes back," says Orazi. Tests show "it" to be a kind of alga that feeds on the iron-rich liquid that seeps up from below. And pop-up waste? Among the scariest finds, says Orazi, are blood bags and syringes. More typical are the tires and rubber hoses that literally float up through the

The hazards don't end with belches of garbage and gas. The heat of decaying trash can itself ignite the gases a landfill releases. That may have been the case when a six-foot flame shot from a crack

Closed structures, of course, are particularly susceptible to landfill gas. Without proper sealing and venting, methane can seep inside a building on or near a landfill and rise to explosive levels. That's what happened two years ago in a snack bar under construction on a landfill driving range in North Hempstead, New York. One night the water heater kicked on, igniting a fireball that knocked down the walls.

ESPITE THE SCARE STORIES, OVER THE past 20 years hundreds of municipalities and landfill operators have fashioned closed landfills into golf courses, parks, ball fields, playgrounds, even ski slopes. There is no national tally-largely because dumps, especially closed dumps, are considered local domain. And there is little regulation. "You don't need an EPA permit to play ball on a landfill," says Allen Geswein, of the Environmental Protection Agency's office of solid waste. "And given the current political climate, I wouldn't expect any moves in that direction."

Yet the need for more and bigger

others. Vinyl chloride is a particularly toxic and persistent gas-persistent because it kills the very microbes able to dechlorinate and so detoxify it. The EPA's new rules require landfill owners to monitor and control these dangerous vapors in the air just above the landfill cover, keeping them within a safety margin of 500 parts per million. Control measures usually include an underground venting system that sucks toxic vapors and other landfill gases aboveground and burns

them off. Unfortunately, EPA regulations apply only to large landfillstypically those serving more than 100,000 households-that have been opened or modified since 1991. "This isn't to say that smaller and older landfills aren't of concern," savs Smith. The EPA encourages individual states to set higher standards. California, for one, actually does, she adds. Moreover, whether from civic-mindedness or fear of liability, some of the nation's garbage giants are pioneering new designs for landfills and landfill parks that far exceed government

HE 188-ACRE LIVE Oak Landfill and Recycling Center on Atlanta's outskirts is a far cry from the haphazard dumps of

standards.

the past. Roughly the size of several football fields, it is one of the Southeast's largest landfills—handling some eight tons a minute, 4,500 tons a day. Opened in 1986 by Waste Management-which is the world's largest waste-disposal company, with some 140 landfills—Live Oak will reach capacity in 2001. After that it may begin a new life as a recreational facility with soccer fields and horsebackriding trails.

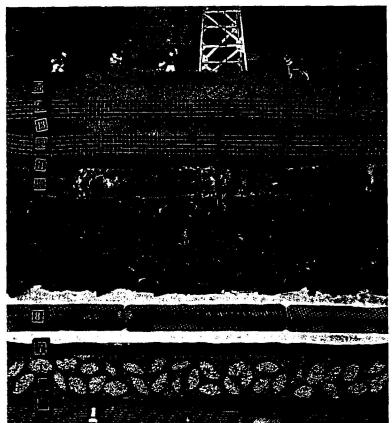
Last December trash compactors at the Live Oak site were still spreading refuse on top of two of the three trash

heaps that will end up 160 feet high. The first two mounds sit astride a central pit, where the operation's next phase will begin. Garbage will ultimately fill this pit, then start piling up and out like an inverted mountain against the sides of its sister peaks. The result will be a single flattened pyramid with a playable tabletop some five acres in size.

At the bottom of the still-empty central pit are seven lavers of protective barriers for gathering and removing

Directly beneath this layer of sand is a thin—.06 inch—sheet of high-density polyethylene (HDPE) plastic. Below the plastic lies a quarter-inch geosynthetic clay liner consisting of two fabric lavers filled with a dry granular clay called bentonite. When wetted by, say, a leak in the overlying plastic sheet, the bentonite swells to form a tight, highly impermeable barrier.

The next laver down is the landfill's drainage system-a thick screen of heavy



Building a modern landfill, from the bottom up:

- 1. Compacted clay
- 2. Plastic liner
- Drainage grid
- 4. Pump and alarm
- 5. Textile
- 6. Absorbent clay
- 7. Plastic liner
- 8. Sand and perforated drainage pipes
- 9. Trash and soil layers
- 10. Compacted clay
- 11. Plastic liner
- 12. Drainage grid
- 13. Textile
- 14. Drainage grid
- 15. Soil, playground, and gas-collecting well

leachate—the polluted liquid from the decaying waste. The uppermost laver is a two-foot blanket of glistening white sand; not ordinary sand but grains manufactured to a specific size. If the grain sizes varied, they would pack together under the weight of the landfill, and smaller grains would fill in the holes between larger ones, preventing the runoff of leachate. Buried within this permeable, carefully milled sand is a horizontal pipe that will carry the leachate to a low-lying area. From there it will be pumped out of the landfill for disposal.

HDPE perforated pipes. Should any leachate reach this grid, it will drain to a low-lying pit. Leachate filling the pit will lift a float, which sounds an alarm signifying that the primary liner system has been breached. Live Oak operators can then draw the leachate out of the pit by applying suction. An added safeguard is a bottom laver of high-density polvethylene, which in turn lies on top of six inches of compacted clay.

Above these protective barriers, daily operations begin. Unlike the casually heaped dumps of the past, Live Oak conserves space by squeezing every last bit of air out of the garbage, creating a tightly compressed landfill structure. The garbage is sorted and distributed by size and compressibility, then ironed flat by 100,000-pound trash compactors that grind along on broad, cleated rollers. The compacting continues in two-foot layers until some 1,400 to 1,700 pounds of waste have been compressed into every cubic yard of space. Uncompacted, the same cubic yard would hold just 500 pounds.

At day's end, an eight-to-ten-foot stack of smashed waste is covered with dirt and crushed once more into a "cell." Imagining the landfill in cross section, the daily cells form continuous rows called lifts, which in turn become the landfill's horizontal tissues. Trash compactors grade the landfill's outer slopes to a 30 to 33 degree angle to maximize the structure's stability.

The continuous grading and compacting will greatly reduce the settling of garbage after the landfill is closed. More important, the compaction helps ensure that settlement is smooth and even. through some 140 feet of trash to collect methane-rich gas. Other landfill operators have fashioned even more detailed gas collection systems, including a grid of flexible horizontal perforated pipes that snake through the trash, absorbing gas and feeding it to the vertical gas collection pipes.

Although the EPA requires only that the gas vented from a landfill be flared, Waste Management is considering another plan for Live Oak. The gas might be drawn off to an on-site power plant and used to generate electricity. In this speculative scenario, the company estimates that for some five to ten years after closure, Live Oak could generate .8 to 2.4 megawatts of power, enough continuous energy to serve perhaps 1,200 to 3,600 homes.

The crowning touch, of course, will be the landfill's cap, the crucial barrier between its waste and park visitors of the future. At Live Oak, plans call for a composite cover combining natural and synthetic liners. The layer that lies directly above the waste will be an 18-inch layer of compacted clay. Workers will iron the be able to flex as the garbage beneath it decays and shifts in its bed.

A little chemical manipulation provides the answer: add hexene (C₆H₁₂) to the polyethylene. Hexene's molecular structure prevents it from folding up into the neat, crystalline structure of the polyethylene, thus creating "lumpy," disorganized patches in the polyethylene matrix. This extra elbowroom between the tightly packed carbon chains produces a more flexible, less dense polyethylene. By adding pigments and stabilizers to the polyethylene, chemists can ensure that the membrane lasts upwards of 200 years.

To prevent water from pooling onto-and possibly breaking-the landfill cover, Live Oak engineers will install a drainage net just above the surface membrane. Rainwater seeping into this open grid will flow to the landfill's edge. The drainage net, in turn, will be covered with a synthetic textile, over which will be heaped two feet of soil, seeded with grass. The entire cover system, from compacted clay to top soil, is designed to achieve an impermeability of a ten millionth of a cubic centimeter of water—a leakage rate of less than 147 gallons per acre a vear.

When the landfill cover is finished. the top and bottom liners will be sealed together like a gigantic plastic bag. Postclosure maintenance, such as sealing up fractures or repairing leaks, will be costly. Although Waste Management is reluctant to confirm details concerning revenue, the cost of constructing and operating Live Oak-including buving the land and converting it into a recreation area-will reportedly total some \$400,000 an acre. That's about \$75 million, and it sounds staggering until one calculates revenues for the 188-acre landfill. With tipping fees of \$32 to \$35 a ton, that's as much as \$157,000 a day.

N REALITY, FEW LANDFILL PARKS IN THIS country are as well-financed and stateof-the-art as Live Oak. The typical scenario has been that of a cash-poor local government trying to convert an old, unregulated dump into landfill that can be used as a park. "All too often, county engineers simply dump dirt on the landfill, plant some grass, and say here's your recreation area," says Morton Barlaz, an environmental engineer at North Carolina State University. "Without a properly engineered cover and a methane col-

"Counties often dump dirt on the landfill, plant grass, and say here's your recreation area.

Though Live Oak Landfill may eventually settle by a dozen or so feet over the next 30 years, the overall shape and surface contours should remain roughly the same.

At five acres, Live Oak's upper surface is too small to be converted into a golf course, but had that been the plan, bulldozers would have shaped the top layer of refuse into berms, curving fairways, and flattened greens. For the more modest plan of a ball field or equestrian center, the landfill's upper surface will be graded into a broad, gentle crown with just enough grade, about 5 degrees, to quickly slake off rain.

Before capping the landfill, Live Oak operators will install vertical pipes down clay with 60,000-pound drum rollers until it's virtually impermeable to water. Above this layer they will install a synthetic membrane like the plastic that lines the bottom of the landfill. High-density polvethylene is a popular landfill liner because it consists of strings of polyethylene molecules (CH₂-CH₂) thousands of carbon atoms long. The extreme length and stability of polvethylene's carbon backbone allows the molecules to pack tightly together like a crystal and so resist the assault of corrosive landfill leachate. However, this extreme density comes at the expense of flexibility. HDPE's brittleness is not an issue at the bottom of the landfill, where the membrane lies on top of solid ground. But the landfill cover must

lection system, you're going to have big problems."

Stories like these strike fear in the hearts of municipal attorneys. "The idea of putting people on a landfill makes me shudder," says Ann Moore, an assistant

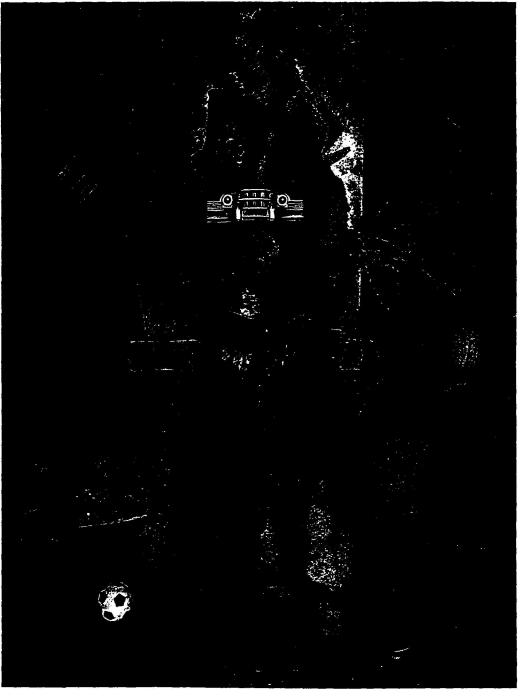
city attorney for Chula Vista, California. As a land-use expert, Moore has followed the landfill conversion trend for many years. "It was real fashionable a while back, and now a lot of cities are experiencing big problems," she says. Adds Barlaz, "There's always the risk that local governments won't have money for the high maintenance these parks demand. When budgets get cut, parks are the first to go."

Others argue that active use may simply be incompatible with the idea of keeping landfills sealed tight within a "drv tomb" of plastic. Bill Sheehan, director of environmental biology for a landfill engineering company in Lawrenceville, Georgia, warns that even the most durable synthetic covers are likely to be punctured by plant or tree roots. The irrigation needed to keep parks green is another bugaboo. If the added water penetrates the landfill cover, it can overload leachate collection systems. This is a particular problem when

irrigation pipes break under the strain of uneven settlement, as they often do.

Still, with dumps filling and open space dwindling, landfill conversions are probably here to stay. And waste disposal companies can point to several thriving examples. Take Mount Trashmore Park in Virginia Beach. Created in 1973 from a 68-foot-high, 650,000-ton garbage heap, the park is now one of the area's most popular-especially with young children, who flock to the colossal wooden playground at its base. Another success is a 600-acre resort in Industry

Some communities, in fact, have apparently overcome their reluctance and are ready to embrace their trash wholeheartedly. With nearly 6 million tons of refuse already in place, Virginia Beach is now drawing up plans for another



Hills, California, home of two championship golf courses. Methane from the underlying landfill is used to heat two Olympic-size pools and a hotel laundry in the adjacent Sheraton Conference Center. Then there's Riverview Highlands, a ski and golf resort built on a 600acre garbage mound south of Detroit.

landfill-based park to keep Mount Trashmore company-one more than twice as high and 18 times as voluminous as the original. After its makeover, the landfill will be dubbed City View Park, for an obvious reason-from its crest you will be able to see all there is to see. It's the biggest thing in town.

Urban sanctuary

Lake Cal could be protected

By Kevin Carmody

Environment Writer

When Congress directed the National Park Service last fall to determine if portions of the Lake Calumet area deserved recognition as federal parkland, the answer appeared predestined.

Although the greenways of the proposed Calumet National Ecological Park are dotted with ecological jewels, many exist on private property in the shadow of idled steel mills and near festering landfills on Chicago's Southeast Side.

"There is a consensus among federal and state resource agencies that it is unrealistic to expect formal inclusion in the national park system, and that there are many other more viable options for protecting these important resources," one high-ranking federal official said.

But that assessment may be changing. A team of National Park Service scientists started a six-month feasibility study in May with three days of briefings and tours of the Lake Calumet area.

What they saw and heard left the nine-member team with an initial impression that some sort of federal recognition may be possible, said Wink Hastings, the park service official from Milwaukee who is leading the assessment team.

"The one area we will be looking at closely is what the resources are and whether they are of national significance,"



Bill Konway/Daily Southtown

National park service officials are studying and inventorying resources such as wildlife in the Lake Calumet area to determine whether the area can win protection as a national parkland.

Hastings said. "We're trying to maintain our objectivity and to draw no conclusions before we see all the information."

Under scrutiny is nearly 50 square miles of land and waterways stretching from the Illinois & Michigan Canal National Heritage Corridor in Lemont to the Indiana Dunes National Lakeshore at the southern tip of Lake Michigan. The ecological park's greenways would follow portions of the Lake Michigan shore, the Calumet Sag Channel, and the Calumet. Little Calumet and Grand Calumet rivers.

The heart of the park — as proposed in 1993 by the Lake Calumet Study Committee — would be a

See Park page 6



atmucd from page 1

1.1.38-acre rectangle surroundg Lake Calumet. Within this on is a patchwork of prairies, rushes and lakes that includes a Midwest's largest rookery of reatened black-crowned night tons, with more than 1,000 sts counted last year.

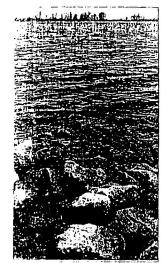
The proposed park would not be national park in the sense of ellowstone or Yosemite.

ellowstone or Yosemite.
The National Park Service outlot be required to buy priately owned land or take control of existing state or local parketnd, according to the 1993 plan. Fivate landowners wouldn't acc any added restrictions on se of their property, And vacant abustrial sites with no conservation value will be reserved for ow industry.

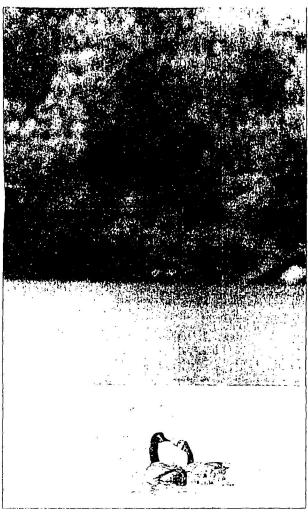
"Private property within the orders won't be affected, ithough we'll encourage the mintenance of existing natural reas and ask some industries to good corporate citizens by ranting conservation easements long waterways," said James anding, former head of the budy committee and principal uthor of the park plan. "We are no objection to appropriate adustrial development because is important for the community to bring jobs back."

That position has allowed local (ficials, including Chicago Ald. dm Buchanan (10th) and lambers of commerce, to adorse the park concept.

Landing and the Calumet Econical Park Association, a coaliion of environmental groups that has taken the lead in dynaming the park plan, believe extional park recognition will coast tourism revenue that will



This is part of the rocky shoreline of Wolf Lake along Chicago's Southeast Side, near 124th Street and Avenue O. In recent docades the National Park Service has luned to a variety of atternative designations—valuenal preserves, corridors, hattlefields, recreation areas and coashores—to recognize resources that don't fit into the mold of a national park.



Photos by Bill Krimway/Daily Southtown

A pair of Canada geese swim on Big Marsh. Canadian geese mate for life and rarely will take another partner even if the other dies.

in turn help generate public support for preserving more of the proposed park's natural areas.

"There is a lot going on already with public and private groups working to purchase or improve wetlands and trails," said Saki Villalobos, superintendent of the state's William Powers Conservation Area at Wolf Lake.

Some of the most important untouched tracts in the Lake Calumet area — including Big Marsh, Burnham Prairie and Whitford Pond — are owned by waste disposal companies, railroads or public agencies such as the Metropolitan Water Reclamation District.

"The biggest threat to the open lands is from waste disposal uses," Landing said.
The Little Calumet River is

The Little Calumet River is lined by residential development and existing greenways. The Grand Calumet corridor is dominated by industry, but there are expanses of open land along the waterway that could provide public access.

In recent decades, the National Park Service has turned to a variety of alternative designations — national preserves, corridors, battlefields, seashores and recreation areas — to recognize environmental, cultural and historic resources that don't fit the conventional mold of a national

park

One recent addition, the Mississippi National River & Recreation Area, covers nearly 60,000 acres of private and public land in the Minneapolis area. But no more than 100 acres will be owned by the National Park Service, Hastings said.

"Local planners will have a central role in land use decisions that protect the resources," he said. "But activities such as barge traffic on the river won't be affected in any way."

affected in any way."

The National Park Service originally examined and rejected the Calumet Ecological Park proposal in 1993. The service's report concluded that many individual sites deserved protection, but environmental contamination was too widespread and the remaining threats to natural areas too great.

Since then, budgetary pressures on the park service have grown. It estimates that its repair and maintenance backlog at existing national parks has reached \$5.6 billion—four times its current annual operating budget.

But the congressional mandate for a full feasibility study, pushed through last fall by U.S. Rep Jerry Weller (R 11th) of Morris, significantly changes the dynamic, said Date Engquest, superinten 103rd St.

106th St.

106th St.

112th St.

122nd St.

122nd St.

122nd St.

134th St.

134th St.

134th St.

Dody Stateman graphs

CALUMET TREASURES

The area surrounding Lake Calumet contains 22 environmentally valuable areas that are threatened by pollution or development. Four more areas are protected as state or county nature preserves. The areas and their owners:

- Altgeld Gardens Marsh. 16 acres, Metropolitan Water Reclamation District.
- 2. Beaubien Woods Forest Preserve. 250 acres, Cook County Forest Preserve District.
- 3. Big Marsh. 290 acres. WMX.
- 4. Burnham Prairie. 175 acres, WMX
- 5. Calumet River.
- Deadstick Pond, 80 acres, Metropolitan Water Reclamation District.
- 7. Eggers Woods Extension.
- 8. Eggers Woods Forest Preserve. 250 acres, Cook County Forest Preserve District.
- 9. Grand Calumet River.
- 10. Hegewisch Marsh. 140 acres, WMX.
- **11. Heron Pond.** 50 acres, Metropolitan Water Reclamation District and many private owners.
- 12. Hyde Lake. 40 acres, Republic Sieel.
- 13. Indian Ridge Marsh North. 105 acres, many private owners.
- 14. Indian Ridge Marsh South.

- 60 acres, many private owners.
- **15. Interchange Marsh.** 11.8 acres, Illinois Department of Transportation.
- **16.Kensington Marsh.** 15 acres, Metropolitan Water Reclamation District.
- 17. Lake Calumet. 540 acres. Illinois International Port Authority.
- 18. Little Calumet River.
- 19. Migrant Bird Trap. 16 acres, Northern Indiana Public Service Co.
- 20.0'Brien Lock Marsh and Whitford Pond. 120 acres, Metropolitan Water Reclamation District.
- 21. Powderhorn Lake Forest Preserve. 175 acres, Cook County Forest Preserve District.
- 22. Powderhorn Lake Extension, 10 acres.
- 23. Railroad Prairie. 190 acres, Norfolk and Southern Railway.
- 24. Turning Basin Wellands.
- 25. Van Vlissingen Prairie. 160 acres, Illinois Harber Belt Railway.
- 26. William Powers Conservation Area & Wolf Lake. 613 acres. Illinois Department of Conservation.

dent of the Indiana Dunes National Lakeshore and a consultant to the park service assessment team.

"The biggest difference is it's the law of the land that we do a feasibility study," Engquist said. "What was done in 1993 was not nearly as in depth as the study will have to be this time."

Using the information gatiered last month, Hastings will now finish designing the study determining what information must be gathered and how. The team, which includes scientists with a variety of skills, has decid ed to conduct a series of public meetings this month, and the locations will be determined soon.
The National Park Service.

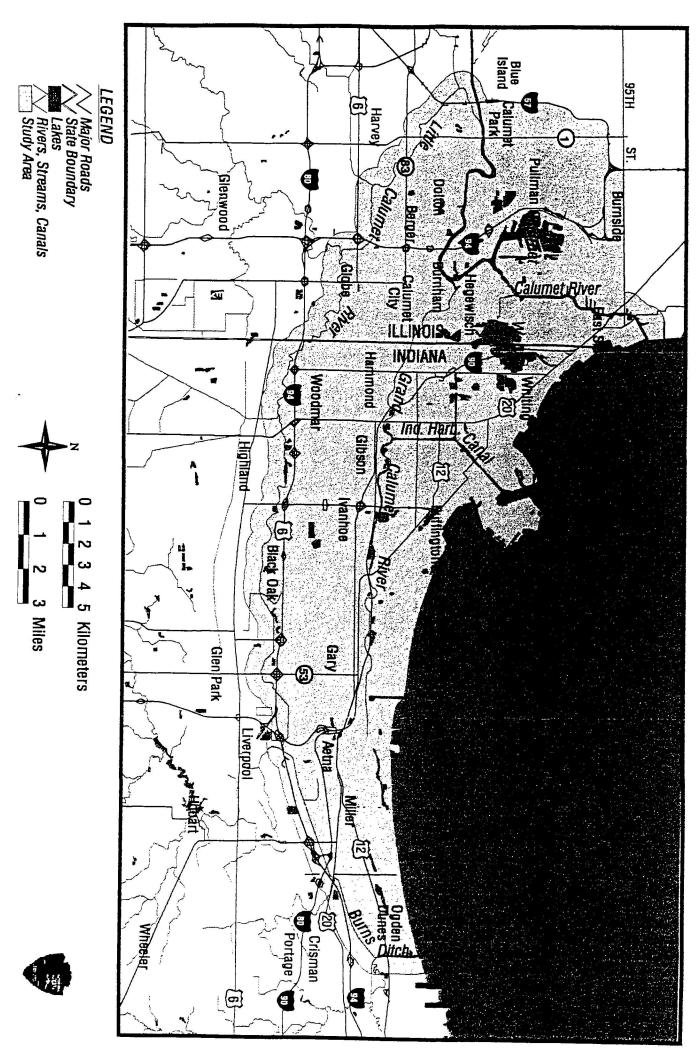
report, which must be delivered to Congress by late November, is certain to do more than offer a verdict on the park concept advoented by the Calumet Ecological Park Association.

"We're going to look at a wide range of alternatives — from areas in the Lake Calumet region being designated as a unit of the National Park System to some type of cooperative preservation efforts with some level of park service participation, or no park service involvement at all." Engquist said Public Law 104-333 Omnibus Parks and Public Lands Act of 1996 Enacted November 12, 1996

Sec. 816. Calumet Ecological Park.

- (a) Feasibility study. --
- (1) In general.--Not later than 6 months after the date of enactment of this Act, the Secretary of the Interior shall conduct a study of the feasibility of establishing an urban ecological park to be known as "Calumet Ecological Park", in the Lake Calumet area situated between the Illinois and Michigan Canal National Heritage Corridor and the Indiana Dunes National Lakeshore.
- (2) Particulars of study. -- The study under paragraph (1) shall include consideration of the following:
- (A) The suitability of establishing a park in the Lake Calumet area that--
- (i) conserves and protects the wealth of natural resources threatened by development and pollution in the Lake Calumet area; and
- (ii) consists of a number of nonadjacent sites forming green corridors between the Illinois and Michigan Canal National Heritage Corridor and the Indiana Dunes National Lakeshore, that are based on the lakes and waterways in the area.
 - (B) The long term future use of the Lake Calumet area.
 - (C) Ways in which a Calumet Ecological Park would--
- (i) benefit and enhance the cultural, historical, and natural resources of the Lake Calumet area; and
- (ii) preserve natural lands and habitats in the Lake Calumet area and northwest Indiana.
- (3) Report.--Not later than 1 year after the date of enactment of this Act, the Secretary shall submit to the Congress a report containing findings and recommendations of a study under this section.

Calumet Ecological Park Feasibility Study



ECOLOGICAL RESTORATION STUDY WORK PLAN FOR LAKE CALUMET CLUSTER SITE CHICAGO, ILLINOIS

VOLUME I TECHNICAL SCOPE OF WORK

June 1997

Prepared for

U.S. Environmental Protection Agency Superfund Division—Region V 77 West Jackson Boulevard Chicago, Illinois 60604

This document was prepared in accordance with U.S. EPA Contract No. 68-W8-0089, WESTON Region V Alternative Remedial Contract Strategy (ARCS) and contains confidential business information.

Work Assignment No. 91-5EF3

Document Control No. 4500-91-AOCL

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SECTION 3

ECOLOGICAL RESTORATION STUDY TASKS

The tasks to be performed during the Ecological Restoration Study (ERS) are identified in

the following subsections. The discussion is organized according to the Statement of Work

(SOW) and the Guidance for Conducting Remedial Investigations and Feasibility Studies Under

CERCLA (OSWER Directive 9355.301). Other guidance and reference material that will

be used conducting the ERS include those presented as Attachment I to the SOW

(Appendix B).

3.1 TASK 1—PROJECT PLANNING AND SUPPORT

The following activities will be performed as part of the project planning task:

Attend kick-off meeting.

• Conduct site visit.

• Evaluate existing information.

Prepare Work Plan.

• Revise Work Plan (if necessary).

Health and Safety Plan (HASP).

3.1.1 Kick-off Meeting

A kickoff-meeting with the U.S. EPA was conducted on 5 May 1995 via telephone.

Personnel in attendance included Terry Bosko (WESTON), Warren Buchanan (WESTON),

Dean Geers (WESTON), Pablo Valentin (U.S. EPA), Pat Vogtman (U.S. EPA), and Larry

Schmitt (U.S. EPA).

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3.1.2 Conduct Site Visit

A 1-day visit of the sites was conducted with the U.S. EPA Work Assignment

Manager/Remedial Project Manager (WAM/RPM) during the project planning phase to

develop a conceptual understanding of the site for purposes of preparing the Work Plan.

This site visit occurred on 29 May 1997 and was conducted by Terry Bosko and Warren

Buchanan of WESTON, and Pablo Valentin and Larry Schmitt of the U.S. EPA.

3.1.3 Evaluate Existing Information

Available background information pertaining to the sites was obtained from the U.S. EPA

RPM and reviewed for preparation of this Work Plan. Existing data and documents

reviewed included:

Preliminary Assessments

• Site Inspections

• Expanded Site Inspections

Removal Reports

3.1.4 Work Plan Preparation

WESTON will prepare a Work Plan for conducting the ERS within 37 days of receipt of the

work assignment (WA). A one week extension was granted by the Contracting Officer to

allow time for the site visit. WESTON will use information from the U.S. EPA WAM/RPM

as the basis for preparing the ERS Work Plan. ERS work will be coordinated and properly

sequenced with U.S. EPA ERS activities.

The ERS Work Plan will include a comprehensive description of the project tasks, the

procedures to accomplish them, project documentation, and project schedule. WESTON

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will use our internal quality assurance/quality control (QA/QC) systems and procedures to

assure that the work plan and other deliverables are of professional quality requiring only

minor revisions. Specifically, the Work Plan will include the following:

• The technical approach to each task to be performed, including a detailed

description of each task, the assumptions used, any information to be produced during and at the conclusion of each task, and a description of the

work products that will be submitted to U.S. EPA. Information will be presented in a sequence consistent with the SOW. This information is

presented in Section 3 of this Work Plan.

• A schedule with specific dates for completion of each required activity and

submission of each deliverable required by the SOW. The schedule will also include information regarding timing, initiation, and completion of all critical

path milestones for each activity and deliverable and the expected review time for U.S. EPA. This information is presented in Section 4 of this Work Plan.

• A list of key contractor personnel providing support on the work assignment.

This information is presented in Section 5 of this Work Plan.

3.1.5 Revised Work Plan Preparation (if necessary)

If necessary, a revised Work Plan will be prepared. Prior to revising the Work Plan,

WESTON will participate in a conference call or attend a Work Plan fact

finding/negotiation meeting at the Region V office. U.S. EPA and WESTON will discuss

and agree upon the final technical approach and costs required to accomplish the tasks

outlined in the SOW.

The revised Work Plan will incorporate the agreements made in the fact finding/negotiation

meeting and will be prepared and submitted for U.S. EPA review and approval. The

revised Work Plan will be submitted within 15 days after receipt of U.S. EPA comments.

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3.1.6 Health and Safety Plan

WESTON will prepare a Health and Safety Plan (HASP) that specifies employee training,

protective equipment, medical surveillance requirements, standard operating procedures, and

a contingency plan in accordance with 40 CFR 300.150 of the NCP and 29 CFR 1910.120

1(1) and (1)(2) for the purposes of visiting the sites as well as conducting an ecological

assessment at the Lake Calumet Cluster sites.

It is anticipated that all site visits can be conducted using Level D protection.

3.2 TASK 2-MEETING SUPPORT

This task includes technical support by WESTON during planning meeting(s) with the U.S.

EPA, state, and community groups. These meetings will be conducted as brainstorming

sessions to solicit inputs from interested parties in the restoration process of the area. One

such meeting was held on 30 April 1997 and was attended by Terry Bosko and Warren

Buchanan of WESTON.

3.3 TASK 3—DATA ACQUISITION

The data acquisition task entails collecting information required to support the ERS. The

planning for this task will be accomplished in Task 1 - Project Planning and Support. The

data will be obtained from the documents mentioned in Task 1, literature searches, and site

visits.

The literature review and site visits will be used to characterize ecological resources on and

adjacent to the sites, including:

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Wetland and Upland Habitat Delineation

• Wildlife Observations

Community Characteristics

Identification of Endangered Species

Population Studies

Pertinent information that may be reviewed during the literature search includes natural

features inventories, open space studies, soil surveys, National Wetland Inventory (NWI)

maps, U.S. Geological Survey (USGS) topographic surveys, National Flood Insurance Maps,

Cook County hydric soils list, local wetlands maps, land use and land cover maps, zoning

designations, historic and recent aerial photographs, satellite imagery if available, stream

gauge and soil drainage data, and any site-specific or surrounding area ecological studies.

To address such critical factors such as endangered or threatened species, the Illinois

Department of Natural Resources (IDNR) and the U.S. Fish and Wildlife Service (USFWS)

will be contacted for advice on the recorded occurrence of such species in any of the

individual sites.

Following document review and evaluation and the preparation of a preliminary list of

restoration alternatives, site visits will be conducted to better familiarize ourselves with the

overall baseline site conditions. These surveys will be walk-through surveys to ground-truth

each site. The visits will allow for quick and efficient assessment of site conditions and

characteristics, resulting in the development of a list of proposed restoration alternatives.

Natural features to be evaluated during the site visits include but are not limited to

geomorphic conditions (i.e., land forms, drainage, floodplains, soils), vegetation patterns and

composition (i.e., assessment of native and non-native species), wetlands, water resources

(including surface and groundwater hydrology), and wildlife habitat. Such factors as the

presence of remnant natural systems, or whether conditions will allow the integration of

reconstructed natural systems will also be assessed during the site visits. It is assumed that

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soil/water testing will not be necessary, though limited data collection (e.g., vegetation

surveys) may be required to determine existing site characteristics and restoration feasibility.

Characteristics that will be assessed during the site visits include:

• Geomorphic characteristics (e.g., landforms, surface drainage, soils) and groundwater hydrology will be assessed at each site. Also, areas where

restoration alternatives may be restricted (e.g., closed landfills) will be noted.

Given that the potential for restoration, enhancement, or establishment of higher quality vegetation communities is dictated by the physical conditions

(i.e., soils and hydrology), the physical limitations of the sites to feasibly

support higher quality vegetation communities will be studied.

• Wetland and upland habitats within each individual site will be characterized

by dominant plant species. Swink-Wilhelm methodology and data-recording protocols may be used to quantitatively assess the vegetation community

composition and quality.

• Observations of land use by mammals, avifauna, and herptiles will be

recorded. These observations will be supplemented by professional judgment on the overall suitability and quality of the site for use by wildlife. These

judgments will be based on diversity and condition/health of the habitats, along with the size and contiguity of the sites, particularly its relationship to

corridors or other important natural area systems.

• Significant surface water resources (e.g., retention ponds on Paxton Landfill)

will be assessed to determine the relative quality of each site as an aquatic habitat for spawning fish populations. Observations will be made on water

clarity/turbidity, the existence of deep/shallow habitats, changeover, and

communication with other aquatic systems.

3.4 TASK 4—DATA EVALUATION

WESTON will organize and evaluate existing data. The data to be evaluated will be

obtained from the ESI reports for the sites. Data evaluation will begin with the receipt of

analytical data from the data acquisition task and ends with the submittal of the Data

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3.5 TASK 5—RESTORATION ALTERNATIVES EVALUATION

WESTON recognizes that the goals of the project include development of alternatives to

create natural communities of higher quality and, in the process, effectively remediate or

manage risk from environmental contamination problems on the individual sites.

The baseline assessment and data evaluation performed in Tasks 3 and 4 will lead to the

identification of a spectrum of feasible and practical goals and values that can be achieved

on the individual sites. The overall area will be subdivided into planning units based on

their respective limitations and potential to achieve certain ecological values. For example,

Land and Lakes #3 and Paxton Landfill are regulated waste disposal units that must meet

strict closure requirements, which include requirements on cap material and vegetative

cover. In addition, these landfills are prominent features in the landscape since they are

approximately 100 feet above the natural grade in the area. Perhaps overseeding these

areas with native grasses and wildflowers area may be used to enhance the ecology of these

landfills. The restoration alternative for the landfills may be as overlook points for the

entire area.

On the other hand, in areas where the soil and hydrology will support a higher quality

vegetative community, that will become the recommended end goal. In all cases, the

management of human health and ecological risk related to residual environmental

contamination will be considered in development of ecological enhancement goals.

Under this task. WESTON will perform a Restoration Alternatives Evaluation, which

includes the following activities;

Develop restoration concepts and prove feasibility of those concepts.

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• Perform economic analysis to determine investment justification of a

restoration effort.

• Assess the areal extent of restorable land and the contiguity of areas to be

restored.

Assess the interface of the referenced sites with restoration efforts of others

on nearby properties.

Alternative restoration uses will be considered so that areas that do not lend themselves to

reestablishment of an ecological community of acceptable quality might still be considered

for compatible uses. The potential for specific restoration goals will be judged based on

ecological quality potential and physical/chemical constraints.

A major focus of our effort will be directed at identifying restoration options that provide

ease of restoration, while at the same time increase biodiversity, improve wildlife habitat,

provide multiple environmental functions and benefits, and result in the creation of

attractive landscapes with overall maintenance cost reduction.

3.6 TASK 6—ERS REPORT

WESTON will develop an ERS Report that consists of a detailed analysis of alternatives

and cost-effectiveness analysis in accordance with the guidelines established in Task 5.

3.6.1 Prepare Draft ERS Report

WESTON will prepare a draft ERS Report, which will contain the following:

Site Background

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- Site Characteristics
 - Geology
 - Hydrogeology
 - Meteorology
 - Demographics and land use
 - Ecological assessment
- Nature and Extent of Contamination
 - Contaminant sources
 - Contaminant distribution and trends
- Fate and Transport
 - Contaminant characteristics
 - Transport processes
 - Contaminant migration trends
- Summarizes Ecological Restoration Study Objectives
- Summarizes Restoration Objectives
- Articulate General Response Actions
- Restoration Alternatives Description
- Detailed Analysis of Restoration Alternatives
- Summary and Conclusions

In analyzing restoration alternatives, WESTON's technical feasibility considerations will include the careful study of any problems that may prevent a restoration alternative from mitigating site problems. Therefore, the site characteristics from the ESIs will be kept in mind as the technical feasibility of the alternative is studied. Specific items to be addressed are:

- Reliability (operation over time).
- Safety, operation and maintenance.
- Ease of alternative implementation.
- Time for implementation.

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3.6.2 Prepare Final ERS Report

After review of the draft ERS Report, WESTON will incorporate U.S. EPA comments and

submit the final ERS Report within 15 days after receipt of U.S. EPA comments.

3.7 TASK 7—PROJECT MANAGEMENT

WESTON will perform general work assignment management including management and

tracking of costs, preparation of Monthly Progress Reports, attendance at project meetings,

subcontractor arrangements, and preparation and submittal of invoices. It is anticipated that

the period of performance for this project is from April 1997 through October 1997.

3.7.1 Prepare Monthly Status Reports

WESTON will prepare monthly progress reports in accordance with requirements under the

ARCS Region V contract. Reporting includes preparing monthly technical and financial

progress reports and preparing and submitting invoices.

3.7.1.1 Document Cost and Performance Status

WESTON will document the technical progress and status of each task in the WBS for the

reporting period in accordance with contract requirements. Costs and level of effort for the

reporting period as well as cumulative amounts expended to date will be reported.

Technical progress reports will include:

• Identification of activities completed.

Status of work on the project and progress to date.

Percent complete per task.

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Difficulties encountered during the reporting period.

• Actions being taken to rectify problems.

• Activities planned for the following month.

• Changes in project personnel.

Financial progress reports will include:

• Identification of specific activities.

• Actual expenditures in detail, including fee and direct labor hours by category.

• Projection of expenditures for completing the project, including an explanation

of significant variations from the forecasted target.

3.7.1.2 Prepare and Submit Invoices

Monthly invoices will be prepared and submitted in accordance with the level of detail as

specified in the ARCS Region V contract.

3.7.2 Work Assignment Closeout

At the completion of the ERS, WESTON will perform the necessary activities to close-out

the work assignment in accordance with project requirements. This task is a requirement

of the ARCS Region V contract to officially terminate the work assignment.

3.7.2.1 Package and Return Documents to Government

WESTON will box up all draft and final versions of deliverables and raw data information

and send them to the U.S. EPA Records Center or as directed in the Work Assignment

Close-out Notification (WACN).

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3.7.2.2 Prepare Work Assignment Close-out Report

WESTON will prepare and submit a Work Assignment Close-out Report (WACR) as directed in the Work Assignment Close-out Notification (WACN).

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SECTION 4

SCHEDULE AND DELIVERABLES

The schedule for performance of the ERS and the deliverables for this scope of work described within this Work Plan are presented in Table 4-1. The schedule for Tasks 1 through 7, as described in this Work Plan, extends through 31 October 1997. Three (3) copies of all deliverables will be provided to U.S. EPA.

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Table 4-1

Deliverable Schedule Ecological Restoration Study Lake Calumet Cluster Site Chicago, Illinois

Deliverable	Due Date	Notes
Work Assignment (WA) Initiation	1 May 1997	Date Work Assignment (WA) approval signed by WESTON.
Kick-off Meeting	5 May 1997	Scheduled within 5 calendar days of WA. Actual date of meeting.
ERS Work Plan	6 June 1997	Due 30 calendar days after initiation of WA. Extended 1 week per U.S. EPA Contracting Officer due to schedule constraints in conducting initial site visit.
Health and Safety Plan	30 May 1997	Due 30 calendar days after initiation of WA. Extended 1 week per U.S. EPA Contracting Officer due to schedule constraints in conducting initial site visit.
Draft ERS Report	See notes	Due 90 calendar days after approval of ERS Work Plan.
Final ERS Report	See notes	Due 15 calendar days after receipt of U.S. EPA comments. Anticipated WA completion date is 31 October 1997.
Work Assignment Closeout Report	See notes	Due 45 calendar days after receipt of Work Assignment Completion Notification (WACN).